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WOLF GREENFIELD (Microsoft Corporation)
C/O WOLF, GREENFIELD & SACKS, P.C.
600 ATLANTIC AVENUE
BOSTON, MA 02210-2206

EXAMINER	
MACILWINEN, JOHN MOORE JAIN	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/686,620	DUNAGAN ET AL.	
	Examiner	Art Unit	
	John M. MacIlwinen	2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12, 25 - 36, 38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12, 25 - 36, 38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 4/28/2008 have been fully considered but they are not persuasive.

2. Applicant begins by arguing that “Speakman does not disclose or suggest joining a first multicast tree and joining a second multicast tree that includes a subset of the overlay nodes in the first multicast tree". Applicant's argument is not persuasive as Speakman was not cited to teach all of “joining a first multicast tree and joining a second multicast tree that includes a subset of the overlay nodes in the first multicast tree". Furthermore, Speakman does indeed teach joining a second multicast tree that includes a subset of the overlay nodes in a first multicast tree, which is shown, for example, in col. 3 lines 25 – 47 and col. 5 lines 9 – 55.

3. Applicant next argues that “Instead, Speakman describes a network where all nodes perform content-based filtering of messages”. However, the Examiner does not agree that Applicant’s citations from Speakman support this assertion. Applicant’s arguments thus are not persuasive.

4. Applicant continues to argue that “Feigenbaum does not disclose or suggest forming a multicast tree such that a path in the multicast tree is prohibited from reentering the first network region one the path leaves the first network region." However, Feigenbaum was not cited to teach off all “forming a multicast tree such that a path in the multicast tree is prohibited from reentering the first network region one the path leaves the first network region”. Feigenbaum does show where a path in the

multicast tree is prohibited from reentering the first network region once the path leaves the first network region (Fig. 17, col. 11 liens 14 - 64), where the claimed “path” corresponds to the path taken by the communication in Feigenbaum.

5. Applicant continues arguing that “Instead, Feigenbaum describes a broadcast communication provided with a hop count . . .” and “that adding a hop count to a communication, which has the effect of preventing further forwarding when the hop count decrements to zero, is very different from forming a multicast tree such that a path in the multicast tree is prohibiting from reentering a first network region one the path leaves the network region.” Applicant’s argument is not persuasive, as the hop count in Feigenbaum is specifically related to “transfer across network boundaries” (col. 11 lines 23 – 25) rather than general forwarding or transfer, where said "network boundaries" corresponds to the claimed "network region."

6. Applicant next argues that “A path in a multicast tree that does not reenter a first network region is distinctly different than a message that does not reenter the first network region.” However, a path taken by a message, which Feigenbaum describes controlling, is indeed analogous to a path set-up for messages to travel in a multicast tree.

7. Applicant next argues that “Feigenbaum does not disclose or suggest forming a multicast tree". However, Feigenbaum was not cited to teach said "forming".

8. Applicant next asserts that “modifying a communication to include a hop count is a significant burden . . .”. However, Applicant provides no support for this assertion.

9. Furthermore, In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

10. For at least the reasons given above, Applicant's arguments are not persuasive.

11. Applicant continues by arguing that "Speakman requires every node in the forwarding path to participate if any of the descendent nodes in the tree are interested in the data". However, In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., every node in the forwarding path not to participate if any of the descendent nodes in the tree are interested in the data) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

12. Applicant continues arguing that "Thus, all the nodes in Speakman are participating nodes that participate in message dissemination." The Examiner does not agree. Speakman teaches, for example in col. 5 lines 50 -56, "only transmitting information packets in the multicast distribution tree . . . if at least one downstream recipient from that particular interface has indicated that it descries to receive [the information/packet]". This clearly teaches limiting the number of participating nodes to a subset of all of the nodes, where said nodes that have not "indicated it desires to

receive" the information are not participating nodes (col. 5 lines 34 – 56). Additionally, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

13. Applicant's arguments, for the reasons given above, are thus not persuasive.

14. Applicant continues by arguing O'Sullivan, specifically that "O'Sullivan's technique . . . is that a node simply opts out" and that "The non-participating nodes in O'Sullivan are not part of any multicast tree and so cannot aid in the construction of a second multicast tree." However, O'Sullivan was only cited to teach "where a subset consists only of notes that voluntarily participant", not what Applicant has argued above. Also, In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

15. Applicant's arguments, for the reasons given above, are thus not persuasive.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the

> subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 5, 11 and 36, are rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe: A large-scale and decentralized application-level multicast infrastructure (Castro et al., published in IEEE Journal 10/2002, but publicly available online 9/2002), hereafter Scribe, in view of Feigenbaum et al. (4,718,005), hereafter Feigenbaum, further in view of Crockett et al. (US 2003/0154243 A1), hereafter Crockett.

3. Regarding claims 1 and 36, Scribe shows a method and computer readable medium for providing a scalable multicast infrastructure for multicast messaging on an overlay network including a set of nodes (Introduction and pgs. 101 and 102), wherein each node in the set has a node name, the method comprising: forming a multicast tree formed from a subset of the set of overlay nodes, such that a root node of the multicast tree belongs to a first network region and

disseminating messages through the multicast tree (pgs. 101 and 102, furthermore, it is inherent that said root node must belong to a network region).

Scribe does not show where a path in the multicast tree is prohibited from re-entering the first network region once the path leaves the first network region.

Feigenbaum shows where a path in the multicast tree is prohibited from re-entering the first network region once the path leaves the first network region (Fig. 17, col. 11 lines 14 – 64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe with that of Feigenbaum in order to ensure that node requests do not result in endless looping, rendering the network unusable (Feigenbaum, col. 11 lines 14 – 64).

Scribe in view of Feigenbaum show utilizing node names, including an IP address for contacting a node whenever possible (Section III, A.3, Paragraph 1, and A.2 Paragraph 2)

Scribe in view of Feigenbaum do not show where the IP address corresponds to location information.

Crockett shows where an IP address corresponds to location information ([0048, 0096-0098]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Feigenbaum with that of Crockett as IP addresses are an extremely common way of contacting nodes, and IP addresses inherently disclose information about the nodes which they representing, thus providing a obvious choice for learning more about a node.

4. Regarding claim 2, Scribe in view of Feigenbaum and Crockett further disclose wherein the multicast tree is formed by routing a subscription message from a subscriber node in the first network region to the root node, comprising: receiving the subscription message at a node in the first network region; recording a forwarding pointer to a previous node from which the message was received; and forwarding the message to the root node by routing the message to a next node within the first network

region, based on a node name of the next node (Scribe, Section III, A.2 and Figs. 3 – 5; specifically where said subscription message is represented in Scribe by a 'join' message, and where said root node is represented in Scribe by a 'rendez-vous point', and where said node name is represented by said 'nodeID' and 'nextID', which can both also be IP addresses).

5. Regarding claim 5, Scribe in view of Feigenbaum and Crockett further disclose wherein a network region is one of a geographic locality and an administrative domain (Crockett [0048,0096-0098]).

6. Regarding claim 11, Scribe in view of Feigenbaum and Crockett further disclose wherein an external node belonging to a second organization sends a subscription message to the root node of the multicast tree by determining an internet protocol address of a node in the first organization using a name service and sending the subscription message from the external node to the node belonging to the first organization using a network transport layer underlying the overlay network (Scribe, Section III, A.3).

7. Claims 3, 4 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Feigenbaum and Crockett as applied to claim 1 above, and further in view of Speakeman et al. (US 6,398,475 B1), hereafter Speakeman.

8. Regarding claim 3, Scribe in view of Feigenbaum and Crockett show claim 1, including; forming a plurality of multicast trees (Scribe, Introduction, Paragraph 3) and forwarding the messages to subscribers through the plurality of multicast trees (Scribe, Section III, Paragraph 1).

Scribe in view of Feigenbaum and Crockett do not show creating a topic for which messages are published and publishing messages about the topic to a root node of each of the plurality of multicast trees.

Speakeman shows creating a topic for which messages are published and publishing messages about the topic to a root node of each of the plurality of multicast trees (Abstract, col. 1 line 55 – col. 2 line 45).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Feigenbaum and Crockett with that of Speakeman in order to utilize a more efficient multicast tree structure that minimizes duplication of effort (Speakeman, col. 1).

9. Regarding claim 4, Scribe in view of Feigenbaum, Crockett and Speakeman further show wherein a subscriber in the first network region finds the topic using a name service comprising a directory of topics published in the first network region (Speakerman, col. 3 line 25 – col. 4 line 24, Abstract).

10. Regarding claim 12, Scribe in view of Feigenbaum, Crockett and Speakeman further disclose maintaining a buffer at each node of each of the plurality of multicast trees to record recent messages (Scribe, pg. 105 col. 1 lines 13 – 16, Feigenbaum, col. 6 line 55 – col. 7 line 7).

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Feigenbaum and Crockett as applied to claim 1 above, and further in view of Jonsson (US 2003/0162499 A1).

Scribe in view of Feigenbaum and Crockett show claim 1.

Scribe in view of Feigenbaum and Crockett do not show wherein a network region comprises a subset of the set of overlay nodes, and wherein the network region is owned by an organization and each node in the network region also belongs to the organization.

Jonsson shows wherein a network region comprises a subset of the set of overlay nodes (Fig. 1, [0101-0102,0130-0132]), and wherein the network region is owned by an organization (Fig. 6, [0055,0078]) and each node in the network region also belongs to the organization (Fig. 1, [0101-0102,0130-0132]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Feigenbaum and Crockett with that of Jonsson in order to enable more routing options, such as via different external networks (Jonsson, Abstract).

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Feigenbaum, Crockett and Jonsson as applied to claim 6 above, and further in view of mail.yahoo.co.uk (as shown in the provided Internet Archive page as existing in 1999).

Scribe in view of Feigenbaum, Crockett and Jonsson show claim 6.

Scribe in view of Feigenbaum, Crockett and Jonsson do not show wherein the node name comprises an organizational indicator indicating ownership by the organization, and an organization-relative indicator that encodes one of a geographic locality and an administrative subdivision within the organization.

mail.yahoo.co.uk shows wherein the node name comprises an organizational indicator indicating ownership by the organization (in this case Yahoo, Inc.), and an organization-relative indicator that encodes one of a geographic locality (in this case, '.co.uk', indicating the United Kingdom) and an administrative subdivision within the organization (in this case, Yahoo, Inc.'s mail subdivision).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Feigenbaum, Crockett and Jonsson with that of mail.yahoo.co.uk as such types of addresses provide useful descriptions to users and are commonly used identifiers.

13. Claims 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Feigenbaum, Crockett and Jonsson as applied to claim 6 above, and further in view of Novaes et al. (US 2003/0012130 A1), hereafter Novaes.

Scribe in view of Feigenbaum, Crockett and Jonsson show wherein an external node belonging to a second organization sends a subscription message to the root node of the multicast tree, further comprising: receiving the subscription message at a last node in the second organization, recording a forwarding pointer to a previous node from which the message was received at the last node (Scribe, pgs. 101 – 102), and modifying the subscription message (pg. 102, 'forward()' method).

Scribe in view of Feigenbaum, Crockett and Jonsson do not show and determining that a next hop in a routing path to the root node is to a node not in the second organization; and modifying the subscription message to request that a node in the first organization forward messages directly to the last node.

Novaes shows determining that a next hop in a routing path to the root node is to a node not in the second organization; and modifying the subscription message to request that a node in the first organization forward messages directly to the last node ([0005-0009,0021-0024,0028,0041-0049,0069-0073]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Feigenbaum, Crockett and Jonsson with that of Novaes in order to utilize a more efficient multicast infrastructure ([0045,0049]).

14. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Feigenbaum, Crockett and Jonsson and Novaes as applied to claim 8 above, and further in view of Speakeman.

Scribe in view of Feigenbaum, Crockett and Jonsson and Novaes show claim 8.

Scribe in view of Feigenbaum, Crockett and Jonsson and Novaes do not show receiving a confirmation message from the node in the first organization.

Speakeman shows receiving a confirmation message from the node in the first organization (col. 4 line 65 – col. 5 line 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Feigenbaum, Crockett, Jonsson and Novaes with that of Speakeman in to provide more reliability when transferring messages.

15. Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Feigenbaum, Crockett and Jonsson, Novaes and Speakeman as applied to

claim 9 above, and further in view of Burbeck et al. (US 7,143,139 B2), hereafter Burbeck.

Scribe in view of Feigenbaum, Crockett and Jonsson, Novaes, and Speakeman show claim 9.

Scribe in view of Feigenbaum, Crockett and Jonsson, Novaes, and Speakeman do not show wherein, if no confirmation message is received choosing a different node and forwarding the subscription request to the different node.

Burbeck shows wherein, if no confirmation message is received choosing a different node and forwarding the subscription request to the different node (col. 3 lines 26 –39).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Feigenbaum, Crockett, Jonsson, Novaes and Speakeman with that of Burbeck in order to utilize all available routes for sending a subscription message to that the odds of the subscription being established is maximized.

16. Claims 25, 26, 27 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Speakeman and O'Sullivan (The Internet Multicase Backbone).

17. Regarding claims 25 and 38, Scribe shows a method of and computer readable medium for participating in a scalable multicast infrastructure for multicast messaging on an overlay network including a set of nodes, the method comprising: joining a first

multicast tree including overlay nodes in an overlay routing path between a subscriber node and a root node of the first multicast tree (Introduction, pg. 101 and 102).

Scribe does not show wherein the first multicast tree includes overlay nodes that voluntarily participate in message dissemination and non-participating overlay nodes that do not wish to participate in message dissemination, joining a second multicast tree formed from the first multicast tree, wherein the second multicast tree includes a subset of the overlay nodes in the first multicast tree, the subset consisting of only the overlay nodes that voluntarily participate in message dissemination, and wherein the second multicast tree excludes the non-participating overlay nodes that do not wish to participate in message dissemination.

Speakeman shows wherein the first multicast tree includes overlay nodes that voluntarily participate in message dissemination and non-participating overlay nodes that do not wish to participate in message dissemination (col. 3 lines 15 – 47, col. 5 lines 30 - 56)

joining a second multicast tree formed from the first multicast tree, wherein the second multicast tree includes a subset of the overlay nodes in the first multicast tree and wherein the second multicast tree excludes the non-participating overlay nodes that do not wish to participate in message dissemination. (Abstract, col. 1 lines 28 – 66, col. 2 lines 35 – 45, col. 3 lines 25 – 56, col. 5 lines 8 – 56).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe with that of Speakeman in order to utilize a

more efficient multicast tree structure that minimizes duplication of effort (Speakeman, col. 1).

Scribe in view of Speakeman do not show the subset consisting of only nodes that voluntarily participate in message dissemination.

O'Sullivan shows the subset consisting of only nodes that voluntarily participate in message dissemination (Background).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Speakeman with that of O'Sullivan as the MBone system disclosed by O'Sullivan was old and well known at the time of the invention, of active interest to one of ordinary skill in the at the time of the invention, and involved research and experimentation in the same area as that of the invention.

18. Regarding claim 26, Scribe in view of Speakeman and O'Sullivan further show wherein the first multicast tree includes a plurality of subscribers (Scribe, Section III, A.2 and Speakeman, col. 3 line 25 – col. 4 line 24).

19. Regarding claim 27, Scribe in view of Speakeman and O'Sullivan further show wherein joining the first multicast tree includes sending a subscription message from a first node addressed to a root node through the overlay network, each node in the overlay routing path: receiving the subscription message at an intermediate node from a preceding node; recording a tree forwarding pointer that points to the preceding node at the intermediate node; and forwarding the subscription message to a next node, wherein the subscription message stops when it reaches one of the root node and another node in the first multicast tree (Scribe, Section A.2).

20. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Speakeman and O'Sullivan as applied to claims 26 and 27 above, and further in view of Novaes.

Scribe in view of Speakeman and O'Sullivan show claim 26 and 27.

Scribe in view of Speakeman and O'Sullivan do not show wherein forming the second multicast tree includes assuming forwarding duties of a non-participating node that does not wish to participate in message dissemination, wherein forwarding duties includes forwarding event messages received from a parent node of the non-participating node to a child node of the non-participating node.

Novaes shows wherein forming the second multicast tree includes assuming forwarding duties of a non-participating node wherein forwarding duties includes forwarding event messages received from a parent node of the non-participating node to a child node of the non-participating node ([0005-0009,0021-0024,0028,0041-0049,0069-0073]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Speakeman and O'Sullivan with that of Novaes in order to utilize a more efficient multicast infrastructure ([0045,0049]).

Scribe in view of Speakeman and O'Sullivan and Novaes do not show where said non-participating node does not wish to participate in message dissemination, but rather where it is either failed, disconnected, unavailable, or transient.

Logical reasoning dictates that a node, as a result of following through with a desire not to participate, would have the same effect as being either failed,

disconnected or unavailable. Not wishing to, and thus not participating, would result in a node effectively being unavailable.

21. Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Speakeman, O'Sullivan and Novaes as applied to claim 28 above, and further in view of Stanko (US 2005/0074126 A1).

22. Regarding claim 29, Scribe in view of Speakeman, O'Sullivan and Novaes show claim 28, including delegating forwarding duties (Novaes [0005-0009,0021-0024,0028,0041-0049,0069-0073]) and after said forwarding duties have been delegated to an ancestor node of the participating node that is the non-participating node, wherein an ancestor node of the non-participating node is directed to forward messages directly to the participating node (Novaes, Figs. 2 – 5).

Scribe in view of Speakeman, O'Sullivan and Novaes do not show where said delegation is achieved through the use of a unique delegation ticket that includes a pointer to the participating node.

Stanko shows where said delegation is achieved through the use of a unique delegation ticket that includes a pointer ([0059]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Speakeman, O'Sullivan and Novaes with that of Stanko in order to utilize a secured method of delegating tasks.

23. Regarding claim 30, Scribe in view of Speakeman, O'Sullivan, Novaes and Stanko further show the generation of one delegation ticket (Stanko, [0059]).

Scribe in view of Speakeman, O'Sullivan, Novaes and Stanko do not show where only one ticket is generated.

Logical reasoning dictates that generating only one ticket would be the most simple and least resource intensive method, and thus an obvious experimental choice.

24. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Speakeman, O'Sullivan, Novaes and Stanko as applied to claim 29 above, and further in view of Traversat et al. (US 2002/0143855 A1), hereafter Traversat.

Scribe in view of Speakeman, O'Sullivan, Novaes and Stanko show claim 29.

Scribe in view of Speakeman, O'Sullivan, Novaes and Stanko do not show wherein the non-participating node must pass the delegation ticket to an ancestor node if the ancestor node is also a non-participating node.

Traversat shows relaying messages until the desired destination is reached ([0412]), and thus shows wherein the non-participating node must pass the delegation ticket to an ancestor node if the ancestor node is also a non-participating node, as if this extra pass did not occur, no joining process would occur and nothing meaningful/furthering the goals of claims 29 and 31 would have been accomplished.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Speakeman, O'Sullivan, Novaes and Stanko with that of Traversat in order to ensure messages achieve the purpose for which they were sent.

25. Claims 32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Speakeman and O'Sullivan as applied to claim 25 above, and further in view of Novaes.

26. Regarding claim 32, Scribe in view of Speakeman and O'Sullivan show claim 25, including wherein joining the second multicast tree includes: receiving at the subscriber node a probe message from a node in the second tree, wherein each node in the first tree receiving the subscription message forwards the subscription message through the first tree until the subscription message is received by the node in the second tree, as well as sending instructional messages to nodes (Scribe, Introduction, Section III).

Scribe in view of Speakeman and O'Sullivan do not show sending a message to the node in the second tree instructing the node in the second tree to forward messages directly to the subscriber node.

Novaes shows where all nodes are maintained as members of a multicast tree, and if a node ceases to be a member, forming a direct path between the member nodes bypassing the non-member ([0005-0009,0021-0024,0028,0041-0049,0069-0073]), thus where a node in the second tree forwards messages directly to the subscriber node (see also Novaes, Figs. 2 – 5, which illustrate this exact process).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Scribe in view of Speakeman and O'Sullivan with that of Novaes in order to utilize a more efficient multicast infrastructure ([0045,0049]).

27. Regarding claim 35, Scribe in view of Speakeman, O'Sullivan and Novaes further show creating a failure notification group including every node receiving the subscription

message, wherein the failure notification group is created using a failure notification service, and wherein the failure notification service removes a relevant state if a failure is ascertained (Novaes [0005-0009,0021-0024,0028,0041-0049,0069-0073], specifically where every node updates its routing information to reflect a node failure, and thus all nodes are part of said 'failure notification group' and where every node updates their routing information to route around a failed node, thus removing its 'state information' from their actively used routing tables).

28. Claims 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scribe in view of Speakeman and O'Sullivan as applied to claim 25 above, and further in view of Burbeck et al. (US 7,143,139 B2), hereafter Burbeck.

Scribe in view of Speakeman and O'Sullivan show claim 25.

Scribe in view of Speakeman and O'Sullivan when the subscription message is received at a first node in the first tree, the first node forwards the subscription message to a parent node of the first node if the first node is not a node in the second tree and has not previously forwarded a subscription message to the parent node, nor do they show then subsequently forwarding a subscription message to a child node if the first node remains not in the second tree.

Burlock shows trying different nodes based on which is perceived as being best capable to respond and fulfill the request (col. 3 lines 26 – 39).

The examiner takes official notice that it would have been an obvious choice to first choose the parent node as a potential subscription route, and then if that failed (which is inherent if the requesting node remains not in the second tree) trying a child

node. A node always has a finite number of connections, in a simple and common case, as is claimed, a node would have a parent and a child. Thus it would have been obvious to experiment to try first sending a request to the parent, then if that failed, the child, in order to utilize Burlock's disclosure of trying multiple routes until the desired result is achieved.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M. MacIlwinen whose telephone number is (571) 272-9686. The examiner can normally be reached on M-F 7:30AM - 5:00PM EST; off alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on (571) 272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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John MacIlwinen

(571) 272 – 9686

/Andrew Caldwell/
Supervisory Patent Examiner, Art Unit 2142